

FILE 'MEDLINE, BIOSIS, CAPLUS, EMBASE' ENTERED AT 18:38:40 ON 01 APR 2002

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L12 2 S L8 AND RETINOID
L13 5173 S ASASHIMA M?/AU OR ARIIZUMI T?/AU OR CHAN T?/AU
L14 9 S L1 AND L13
L15 8 DUP REM L14 (1 DUPLICATE REMOVED)

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1	3827	organ with culture\$	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/01 13:02
7	547	(organ with culture\$) same transplant\$6	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/01 13:15
13	633399	@rlad<19990129	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/01 13:16
43	0	((organ with culture\$) same transplant\$6) and @rlad<19990129) and activin and retinoid	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/01 13:18
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79	2	(organ with culture\$) same xenopus	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/01 14:32
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91	41	(organ with culture\$) and ectoderm	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/01 15:31

97	66	(organ with culture\$) and activin	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/01 15:31
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vertebrate

also called CRANIATA, any animal of the subphylum Vertebrata, the predominant subphylum of the phylum Chordata. They have backbones, from which they derive their name. The **vertebrates** are also characterized by a muscular system consisting primarily of bilaterally paired masses and a central nervous system partly enclosed within the backbone.

The subphylum is one of the best known of all groups of animals. Its members include the classes Agnatha, Chondrichthyes, and Osteichthyes (all fishes); Amphibia (amphibians); Reptilia (reptiles); Aves (birds); and Mammalia (mammals).

General features

Although the vertebral column is perhaps the most obvious **vertebrate** feature, it was not present in the first **vertebrates**, which probably had only a notochord. The **vertebrate** has a distinct head, with a differentiated tubular brain and three pairs of sense organs (nasal, optic, and otic). The body is divided into trunk and tail regions. The presence of pharyngeal slits with gills indicates a relatively high metabolic rate. A well-developed notochord enclosed in perichordal connective tissue, with a tubular spinal cord in a connective tissue canal above it, is flanked by a number of segmented muscle masses. A sensory ganglion develops on the dorsal root of the spinal nerve, and segmental autonomic ganglia grow below the notochord. The trunk region is filled with a large, bilateral body cavity (coelom) with contained viscera, and this coelom extends anteriorly into the visceral arches.

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A digestive system consists of an esophagus extending from the pharynx to the stomach and a gut from the stomach to the anus. A distinct heart, anteroventral to the liver, is enclosed in a pericardial sac. A basic pattern of closed circulatory vessels is largely preserved in most living forms. Unique, bilateral kidneys lie retroperitoneally (dorsal to the main body cavity) and serve blood maintenance and excretory functions. Reproductive organs are formed from tissue adjacent to the kidneys; this original close association is attested by the tubular connections seen in males of living forms. The ducts of the excretory organs open through the body wall into a cloacal chamber, as does the anus of the digestive tract. Reproductive cells are shed through nearby abdominal pores or through special ducts. A muscular tail continues the axial musculature of the trunk.

Approximately 45,000 living species constitute the **vertebrates**. Species of several classes are found from the high Arctic or Antarctic to the tropics around the Earth; they are missing only from interior Antarctica and Greenland and from the North Polar ice pack. In size, **vertebrates** range from minute fishes to elephants and whales (of up to 100 tons), the largest animals ever to have existed. **Vertebrates** are adapted to life underground, on the surface, and in the air. They feed upon plants, invertebrate animals, and one another. **Vertebrate** faunas are important to humans for food and recreation.

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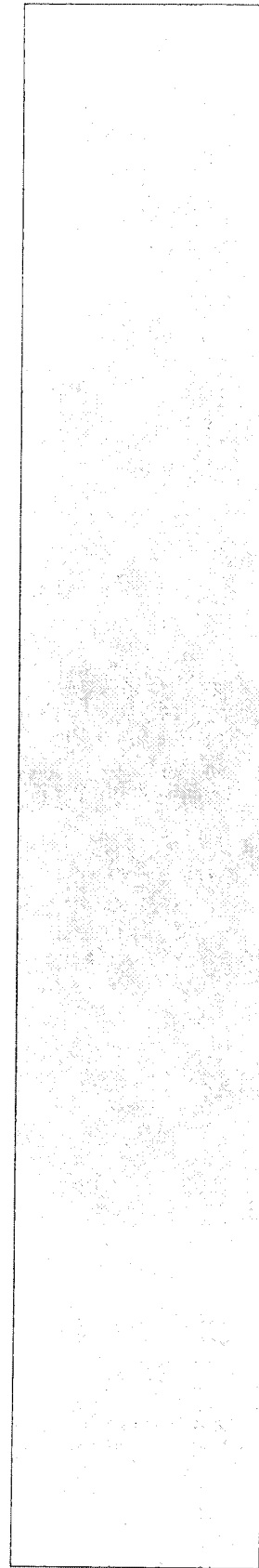
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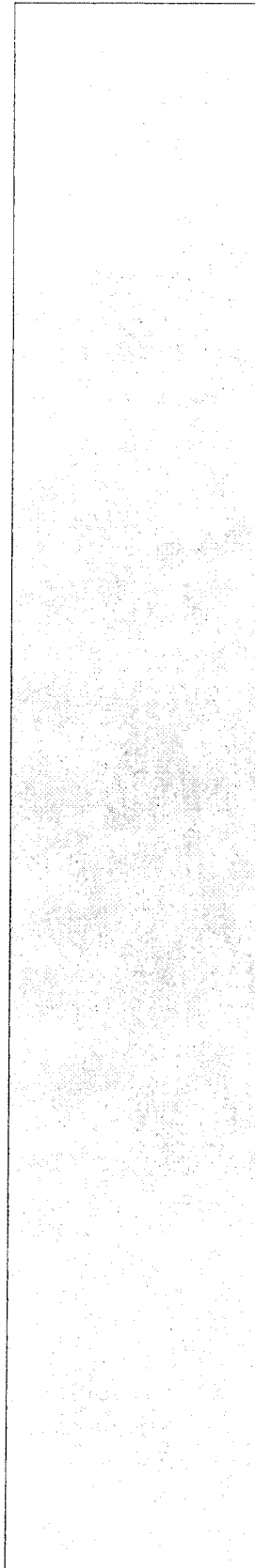
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